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Cross-national variation in the social origins and religious consequences of religious non-affiliation

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Abstract

I argue that the social implications of religious non-affiliation vary across cultural contexts, leading to differences across nations in both who is likely to be unaffiliated and the religious consequences of such non-affiliation. I test these propositions by examining cross-national variation in associations with non-affiliation using multilevel models and cross-sectional survey data from almost 70,000 respondents in 52 nations. The results indicate that: 1) both individual characteristics (gender, age, and marital status) and nation-level attributes (GDP, communism, and regulation of religion) strongly predict religious non-affiliation; 2) differences in non-affiliation by individual-level attributes—women vs. men, old vs. young, and married vs. single—are greatest in nations with low levels of religious regulation and high levels of economic development; and 3) the effect of religious non-affiliation on religiosity varies considerably by the political and religious context, and to a lesser extent by the level of economic development in each nation. These results highlight cultural variation in what it means to be religiously unaffiliated.

Keywords: Religion, Secular, International, Multilevel analysis

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1. Introduction

A feature article in the April 2016 issue of *National Geographic* declared in its title: "The World's Newest Major Religion: No Religion" (Bullard, 2016). Growth in religious non-affiliation[1] does indeed appear to be the most profound change in global religiosity in recent decades. As of 2010, there were 1.1 billion people with no religious affiliation, accounting for 16% of the world's population (Hackett et al., 2012). In the United States alone, the unaffiliated grew from about 7% of the population at the end of the 1980s to 20% in 2012 (Hout and Fischer, 2014). The religiously unaffiliated or "nones" are the second largest religious group in 112 countries, or 48% of all nations on the Earth (Hackett and Huynh, 2015). Thus far, research on the social antecedents and religious implications of the growing phenomenon of non-affiliation has been largely limited to the US population, with a few researchers examining other, primarily Western nations (e.g. Bowen, 2004; Hayes, 2000; Stark et al., 2005; Voas and Crockett, 2005; Voas and McAndrew, 2012).

The social significance of religion, however, differs from nation to nation (Schwartz, 2007; Weber, 1948). Social acceptance of secularism in particular varies geographically (Ribberink et al., 2013). The effects of industrialization and modernization on religion differ across nations (Casanova, 1994), producing what Wohlrab-Sahr and Burchardt (2012: 904) refer to as multiple secularities: "[T]he recognition that the notions of the secular, of secularism and secularity are charged with highly divergent meanings that are linked to different political and cultural contexts and histories of social conflict." The context-specific nature of the cultural relevance of non-affiliation suggests that the demographic antecedents and religious implications of non-affiliation vary across nations. While factors such as gender and age may predict non-affiliation in the US (Baker and Smith, 2009; Baker and Whitehead, 2016), it is unclear how these associations play out cross-nationally. Similarly, while the religiously unaffiliated in a few highly

1 I use the terms unaffiliated, non-affiliated, no religion, and apostate interchangeably throughout this article. These terms are intended to convey lack of affiliation with a specific organized religion, not necessarily lack of religious belief or behavior. Indeed, as the text discusses, it is not uncommon for the unaffiliated to hold standard religious beliefs. For instance, the results in Table 3 indicate that more than one-half of the unaffiliated believe in God.

developed nations report surprisingly high levels of religiosity (Stark et al., 2005), it is unclear how the effects of non-affiliation on religiosity differ across populations.

This article advances understanding of both the social origins and religious consequences of religious non-affiliation. I examine cross-national variation in associations with non-affiliation using multilevel models and cross-sectional survey data from almost 70,000 respondents in 52 nations. I address two primary research questions. First, do the individual-level factors that predict religious non-affiliation vary across nations; and if so, what national attributes are associated with that variation? Specifically, I examine how the effects of gender, age, marital status, and education on religious non-affiliation vary by the economic, political, and religious regulation context in each nation. Second, do the effects of religious non-affiliation on religiosity vary across nations; and if so, what are the factors associated with that variation? Specifically, I model how the effects of religious affiliation on religiosity vary by the economic, political, religious regulation, and religious affiliation context in each nation. The results indicate that: 1) both individual and nation-level attributes strongly predict religious non-affiliation; 2) differences in non-affiliation by individual-level attributes— women vs. men, old vs. young, and married vs. single—are greatest in nations with low levels of religious regulation and high levels of economic development; and 3) the effect of religious non-affiliation on religiosity varies considerably by the political and religious context, and to a lesser extent by the level of economic development in each nation. Ancillary models expand on and provide additional nuance to these findings by examining the interaction between communism and state regulation of religion, alternative measures of religious regulation, and more specific measures of the religious context in each nation. I conclude by discussing cultural variation in what it means to be religiously unaffiliated, and by providing suggestions for future research.

1.1. The social origins of religious non-affiliation

Just as some demographic groups are relatively likely to be hold religious beliefs or participate in religious activities, people with certain attributes are relatively likely to have no religious affiliation.

In particular, age, gender, family formation, and education appear to be the primary characteristics associated with being religiously unaffiliated. "The observation that women are more religious than men," notes Hoffmann (2009: 232), "may be closer to sociology's 'one law' than Durkheim's famous proposition about religious faiths and suicide." Following the general pattern of higher female religiosity, women are less likely than men to be unaffiliated (Baker and Smith, 2009). The strong, positive association between age and religion is another well-established social fact (Wink and Dillon, 2002). Thus, age should negatively affect non-affiliation (Schwadel, 2010). As Heaton and Goodman (1985:343) conclude, "Perhaps no other social institution has a closer link with religion than does the family." Indeed, marriage is seen as a key factor protecting against apostasy (Baker and Smith, 2015). Finally, higher education may "erode" religion (Johnson, 1997). Consequently, education is assumed to have a positive association with various forms of secularity (Baker and Smith, 2015).

I expect the relationships between these individual-level characteristics and religious non-affiliation to vary across nations. The social and cultural implications of gender (Inglehart and Norris, 2003), age (Ayalon et al., 2014), marital status (Cooke and Baxter, 2010), and education (Schwadel, 2015) differ across nations. What it means to be old or young, a man or woman, college or not college educated, and married or single are context specific. These are socially constructed identities that are influenced by local cultures (Jenkins, 2008). Consequently, the impact of these demographic factors on the decision to not affiliate with organized religion is likely to be influenced by the national context. I draw on theories of modernization and economic development, conformity in highly regulated societies, and the impact of political systems to develop hypotheses regarding the nation-level attributes that moderate the effects of individual-level characteristics on religious non-affiliation.

I focus on three nation-level factors that may be related to variation in the association between individual-level attributes and religious non-affiliation. First, economic development, and modernity more broadly, affect social relations and norms in various ways (including religious behaviors, which I take up in more detail in the next section). The social and cultural significance of demographic attributes in particular appears to be tied to economic development. For instance, gender roles vary by the level of economic development in a

nation (Dollar and Gatti, 1999; Inglehart and Norris, 2003). Economic development is associated with reductions in the disparity between men's and women's roles in societies, which suggests that the effect of gender on religious non-affiliation should be reduced in highly developed nations. The effects of other demographic attributes on religious non-affiliation may similarly be attenuated in more prosperous nations. How we view the elderly, for example, varies across nations, apparently in tandem with economic development (Sokolovsky, 2009). The social structures and institutions of more developed nations provide stability in expectations that lead to enduring influences of early life experiences (Dannefer, 2003), thereby potentially diminishing the effects of age on attributes such as religious non-affiliation. Social change research suggests a similar pattern with education, where the association between education and apostasy declined in both the US (Schwadel, 2014) and Great Britain (Voas and McAndrew, 2012) as those nations became some of the most developed nations in the world. The fi*rst hypothesis* reflects this potential impact of economic development: *The effects of demographic attributes on religious non-affiliation will be minimized in nations with higher* per capita *GDP*.

The second relevant nation-level attribute is religious regulation, which generally pertains to laws and institutions that favor one religion over others (Grim and Finke, 2006). The regulation of religion appears to have a robust influence on many religious beliefs and behaviors (McCleary and Barro, 2006; Ruiter and Tubergen, 2009), including religious non-affiliation (Gill and Lundsgaarde, 2004). In most societies, being religiously unaffiliated is an innovative and even deviant identity, which, as Tamney and colleagues (1989: 216) note, "may evoke some negative sanctions." The sanctions resulting from non-affiliation, however, are qualitatively different in societies with high levels of religious regulation. In such societies one does not only risk existential existence or potentially social isolation by choosing non-affiliation (Edgell et al., 2017); one also risks being exposed to legal sanctions and, in some cases, imprisonment or even death for religious non-conformity (Fox, 2015; Pew Research Center, 2017). Legal regulations promote conformity and reduce deviation from established norms (Blanton and Hall, 2009). Therefore, the *second hypothesis* is as follows: *The effects of demographic attributes on religious non-affiliation will be minimized in nations with high levels of religious regulation*.

Third, the political context influences religious affiliation and, potentially, the association between education and religious nonaffiliation. There are relatively low levels of religiosity, and high levels of non-affiliation, in communist and formerly communist nations (Fox and Tabory, 2008; Froese, 2004). Communist regimes are generally antagonistic toward religion; and this antagonism is often inculcated through state institutions such as schools (Sacerdote and Glaeser, 2001). Consequently, greater exposure to educational institutions in communist and post-communist states may promote secularism. The *third hypothesis* is thus: *The positive effect of higher levels of education on religious non-affiliation will be larger in communist and formerly communist nations*. In sum, the first goal of this article is to test how nation-level factors moderate the effects of individual-level, demographic attributes on religious nonaffiliation.

1.2. The religious consequences of non-affiliation

Turning to the consequences of religious non-affiliation, the second goal of this article is to assess how nation-level factors moderate the effects of non-affiliation on religiosity. Research in a few highly developed nations suggests that being religiously unaffiliated is not equivalent to being irreligious (e.g. Lim et al., 2010; Stark et al., 2005). For instance, more than one-half of unaffiliated Americans are deists or theists (Kosmin et al., 2009). As Hout and Fischer (2002: 175) conclude, "Few people with no religious preference showed any sign of religious activity …. But they do pray." In addition to highlighting the potential religiosity of the unaffiliated, this quote points to an important caveat: Although the religiously unaffiliated are on average less religious than those affiliated with organized religion, this difference in religiosity varies across domains of religiosity. It is therefore important to examine various forms of religiosity.

Just as I argued that the effects of demographic characteristics on religious non-affiliation vary across nations, I expect the association between non-affiliation and religiosity to vary across nations. As discussed above, what it means to be religiously unaffiliated differs across nations (Ribberink et al., 2013). There are "multiple secularities," which are tied to their local cultures (Wohlrab-Sahr and Burchardt, 2012). The rapid growth of non-affiliation in the US, for

example, appears to be partially motivated by political circumstances rather than a decline in religion, leading to large numbers of unaffiliated Americans who hold conventional religious beliefs (Hout and Fischer, 2014; Putnam and Campbell, 2010). In general, the form and progress of secularization is dependent on the historic and geographic context (Gorski, 2000; Martin, 1978), suggesting that the religious implications of nonaffiliation vary across nations. I draw from several theoretical perspectives—including secularization and modernization theories, supply-side views of religiosity, and social psychological perspectives on group norms—to develop hypotheses regarding the nation-level attributes that moderate the effects of non-affiliation on religiosity. In addition to the three nation-level factors discussed in the previous section—economic development, religious regulation, and communism—I also generate expectations about the influence of the religious context in each nation.

Secularization and modernization theories emphasize the detrimental influence of economic development on traditional forms of religiosity. This is perhaps most notably articulated by Norris and Inglehart (2004), who argue that the existential security provided by economic prosperity reduces the need for religion by diminishing the uncertainty of daily life. With some caveats, empirical research generally supports this proposition. The social importance of religion, for example, varies with the level of economic development (Bettendorf and Dijkgraaf, 2008). It is more acceptable to eschew religious beliefs and behaviors in more developed nations (Norris and Inglehart, 2004; Taylor, 2007). Consequently, the unaffiliated may feel freer to exhibit additional signs of secularity in such contexts. The *fourth hypothesis* is thus: *Differences in religiosity between the affiliated and unaffiliated are larger in nations with high per capita GDP.*

In contrast to economic prosperity, religious regulation may be associated with fewer differences in religiosity between the affiliated and unaffiliated. The potential consequences of religious behaviors—or lack thereof—are greater where there is more government regulation of religion (Grim and Finke, 2006). Sanctions inhibit non-conformity (Blanton and Hall, 2009), which may lead the religiously affiliated and unaffiliated behave more similarly to one another. Additionally, the religious economies or supply-side perspective on religious vitality suggests that the regulation of religion diminishes religiosity in the

population more broadly (Stark and Finke, 2000). While most people in a nation with high levels of religious regulation may be affiliated with a religion (or "the religion"), the supply-side argument is that affiliation in such societies is nominal in nature. Consequently, there should be relatively little difference in religiosity between the affiliated and unaffiliated in those nations. Thus, the *fifth hypothesis: Differences in religiosity between the affiliated and unaffiliated will be minimized in nations with high levels of religious regulation.*

The religious context may also play a role. The prevalence of religious non-affiliation varies dramatically across nations (Hackett and Huynh, 2015; Warf, 2015). The unaffiliated should behave differently when they constitute a larger proportion of a nation. Popular culture is tied to the religious character of a nation (Friedland, 2001) and will thus convey different messages about the importance of religiosity depending on the prevalence of non-affiliation. This expectation has a firm grounding in social psychological perspectives, which emphasize the importance of the social context in conditioning social expectations. Mead's (1934) conception of the generalized other is particularly relevant, as the generalized other takes on different characteristics in nations with high levels of non-affiliation. Social structure—in this case the prevalence of non-affiliation—influences behavioral expectations (McLeod and Lively, 2003), such as expectations regarding religious beliefs and behaviors (Weber, 1948). Consequently, the *sixth hypothesis: Differences in religiosity between the affiliated and unaffiliated are larger in nations with high levels of religious non-affiliation.*

Finally, the political context should affect the association between non-affiliation and religiosity. As noted above, non-affiliation is more normative in communist and post-communist nations (Fox and Tabory, 2008; Froese, 2004). Lack of religious belief and participation are not only socially acceptable but even state-sanctioned in many communist and formerly communist nations (Barber, 2011; Barro and McCleary, 2003). Unlike the predominant form of religious regulation, which favors one religion over others (Grim and Finke, 2006), communist states generally favor secularity. Similar to the proposed effect of large numbers of religious nonaffiliates, the sanctioning of secularity in communist nations may strengthen the connection between non-affiliation and low levels of religiosity. Thus, the *seventh hypothesis* is as follows: *Differences in religiosity between the affiliated and unaffiliated are larger in communist and post-communist nations.* In

sum, the analyses below further understanding of religious non-affiliation by examining nation-level factors that moderate both the demographic characteristics that predict non-affiliation and the effects of religious affiliation on religiosity.

1.3. Data

I use data from the most recent World Values Survey (WVS 6), which was administered between 2010 and 2014. WVS 6 includes survey data from more than 86,000 respondents in 60 nations. Both full probability and quota sampling procedures were used to reach the goal of surveying at least 1,000 respondents age 18 or older in each nation. The surveys were primarily administered face-to-face. Religious affiliation and/or religiosity questions were not included on surveys in eight nations.[2] After deleting those eight nations, and deleting individual cases with missing data on the dependent variables, there are 70,340 respondents in 52 nations. Another 929 cases are deleted due to missing data on other variables in the models, resulting in an analytic sample of 69,414. The dependent variables gauge non-affiliation and religiosity. A dummy variable indicates religious non-affiliation. The WVS includes four broadly-applicable measures of religiosity. Religious service attendance is a seven-category measure ranging from never/practically never to more than once a week. Frequency of prayer is an eight-category variable ranging from never/practically never to several times a day. Service attendance and prayer are standardized to have a mean of zero and standard deviation of one. Dummy variables indicate belief in God and considering one's self religious. Descriptive statistics for all variables are reported in **Table 1**.

The models include several individual-level independent variables. Dummy variables indicate married and female respondents. Ideally, the models would also include a measure of having children. As Baker and Smith (2015: 152) note, "What often reverses apostasy are marriage and having children." Unfortunately, there is considerable missing data on the survey question about having children, including an entire country that did not get the question. Consequently, having children is not included in the models, though the results reported here

2 The eight deleted nations are Bahrain, Egypt, Kuwait, Qatar, Palestine, Morocco, Tunisia, and Yemen.

Table 1. Descriptive statistics.

	Mean (Percent)	*Standard Deviation*
LEVEL-1 (INDIVIDUAL)		
No Religious Affiliation	(19.5%)	
Christian	(46.9%)	
Muslim	(23.1%)	
Other Religion	(10.4%)	
Religious Service Attendance	.000	1.000
Frequency of Prayer	.000	1.000
Believe in God	(84.7%)	
Consider Self Religious	(67.3%)	
Age[a]	42.465	16.703
Married	(55.2%)	
Female	(52.9%)	
Education:		
No Secondary School Degree	(35.8%)	
Secondary-Vocational	(20.2%)	
Secondary-University Prep	(18.0%)	
Some College	(7.9%)	
College Degree	(18.1%)	
LEVEL-2 (NATION)		
Communist/Former Communist	(26.9%)	
GRI	3.567	3.115
GDP	16.387	17.010
Proportion No Religious Affiliation	.189	.209
Level-2 Variables in Ancillary Models:		
Established/Favored Religion	(30.8%)	
No State Religion	(59.6%)	
State Hostile to Religion	(9.6%)	
Proportion Christian	.474	.341
Proportion Muslim	.234	.372
Proportion Other Religion	.102	.199

Level-1 N = 69,414; level-2 N = 52.

a. Age is centered so it has a mean of zero, and age-squared is added to the models when significant ($p < .05$).

are similar when having children is included in the models.[3] Age is coded in years of age. Age-squared is included in the models when statistically significant ($p < .05$) to compensate for nonlinear age effects.

3 The results are similar when the models of non-affiliation include a dummy variable that indicates having children (not shown). Specifically, the effects of age, gender, marriage, and education are substantively unchanged (both overall effects and variation across nations), and there is a significant, negative effect of children (considerably smaller than the effects of gender and marriage) that does not vary significantly across nations.

Education is measured with dummy variables for those who completed secondary technical/vocational school, secondary university preparatory school, some university education, and a university degree. Not completing secondary school is the omitted reference category. Models of religiosity include dummy variables for Christian, Muslim, and other religion respondents, with the unaffiliated as the omitted reference category. This modeling strategy accounts for differences in religiosity between affiliates of different religions (Halman and Draulans, 2006).

There are several nation-level independent variables included in the models. Regulation of religion is assessed with the Government Regulation Index (GRI), which measures "restrictions placed on the practice, profession, or selection of religion by the official laws, policies, or administrative actions of the state" (Grim and Finke, 2006: 7). Economic prosperity is assessed with the 2012 per capita Gross Domestic Product (GDP), derived from the International Monetary Fund and reported in US dollars (divided by 1,000 to produce more comparable coefficients). A dummy variable indicates communist and formerly communist nations (see La Porta et al., 1998). Finally, the proportion of the nation reporting no religious affiliation is included as an independent variable in the models of religiosity. Ancillary models replace the GRI measure of religious regulation with dummy variables for nations with established or favored religions and nations that are hostile toward religion, with the large category of nations with no state religion serving as the omitted reference category (Pew Research Center, 2017). The Ancillary models also examine the influence of proportion Christian, Muslim, and other religion in each nation, rather than the proportion unaffiliated.

1.4. Analysis technique

I use two-level multilevel models with individuals nested in nations to gauge 1) the effects of independent variables on religious non-affiliation and 2) the effects of religious non-affiliation on religiosity. These models adjust for lack of independence between individuals and the nations they live in with separate level-1 (individual) and level-2 (nation) error terms (Raudenbush and Bryk, 2002). The level-1 model for non-affiliation, for example, is as follows:

$$
\begin{aligned}
Logit\ (Religious\ Non\text{-}Affiliation)_{ij} = {} & \beta_0 \\
& + \beta_1 Female_{ij} \\
& + \beta_2 Married_{ij} \\
& + \beta_3 Technical\ Secondary\ Degree_{ij} \\
& + \beta_4 Preparatory\ Secondary\ Degree_{ij} \\
& + \beta_5 Some\ College_{ij} \\
& + \beta_6 College\ Degree_{ij} \\
& + \beta_7 Age_{ij} \\
& + \beta_8 Age_{ij}^2 \\
& + r_{ij}
\end{aligned}
$$

where the log odds of non-affiliation for person i in nation j is regressed on education, gender, marital status, and age, with the error term or variance component r. The level-2 model of non-affiliation is as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} Communist_j + \gamma_{02} GDP_j + \gamma_{03} GRI_j + u_{0j}$$

where γ_{00} is the logged overall mean of non-affiliation, γ_{01} through γ_{03} are the coefficients for nation-level variables, and u_{0j} represents the error or unexplained variation specific to nation j.

An important advantage to multilevel models is the ability to include random slopes, which are used here to assess variation in the effects of independent variables on non-affiliation and variation in the effect of non-affiliation on religiosity. Cross-level interactions between level-1 and level-2 variables are key to gauging how the effects of individual attributes on non-affiliation vary by nation-level characteristics, and how the effect of non-affiliation on religiosity varies by nation-level characteristics. For instance, the cross-level interactions and random slope for gender in the model of non-affiliation are as follows:

$$\beta_1 Female_{ij} = \gamma_{10} + \gamma_{11} Communist_j + \gamma_{12} GDP_j + \gamma_{13} GRI_j + u_{1j}$$

where u_{1j} is variation in the slope of gender specific to nation j, and γ_{11}, γ_{12}, and γ_{13} are the interaction terms.

The analysis proceeds in three steps. First, I present results from binary logistic multilevel models of religious non-affiliation, focusing

on variation in the effects of age, gender, marital status, and education across nations. Second, I present results from multilevel models of the four measures of religiosity, focusing on variation in the effects of religious affiliation across nations. Third, I present results from ancillary analyses that examine the interaction between communism and state regulation of religion, alternative measures of religious regulation, and the influence of more specific measures of the religious context in each nation. The models are weighted and conducted in HLM 7. All variables other than the focal level-1 variables with random slopes are centered on the overall or grand mean. Several figures highlight the important findings. Only statistically significant coefficients ($p < .05$) are used in calculations to produce the figures.

2. Results

2.1. The effects of individual-level characteristics on religious non-affiliation

Results from multilevel models of religious non-affiliation are reported in **Table 2**. Model 2-A shows that age (b = –.048, and age-squared b = –.008), gender (b = –.198), and marital status (b = –.139) each have strong, negative effects on the likelihood of reporting no religious affiliation. Women's odds of non-affiliation, for example, are ($e^{-.198}$ = .820, 0.820 – 1 =) 18% lower than men's odds of non-affiliation. At level-2, communism (b = .901) and GDP (b = .026) are positively associated with non-affiliation while religious regulation (GRI) has a negative effect (b = –.201). The variance components show that the effects of all the independent variables except for age-squared vary significantly across nations.[4] For instance, in the 47 out of 52 nations where married has a significant ($p < .05$) negative effect, marriage is associated with between an 8% and 45% decrease in the odds of non-affiliation (nation-specific odds ratios not shown, available on request). Moreover, marriage has a significant, positive effect on non-affiliation in three nations. The nation-specific effects

4 There are too few degrees of freedom to include random slopes for all independent variables. Alternative models (not shown) indicate that variation in the effect of age-squared has no substantive impact on the results.

Table 2. Binary logistic multilevel models of religious non-affiliation.

Fixed effects	*Model 2-A*		*Model 2-B*	
	b	*se*	*b*	*se*
Intercept	−1.078	.106***	−1.081	.099***
Level-1 (Individual)				
Age[a]	−.048	.011***	−.050	.009***
× (Former) Communist			.002	.001
× GRI[b]			.089	.027**
× GDP[b]			−.015	.008*
Age-Squared[b]	−.008	.004*	−.007	.004*
Married	−.139	.027***	−.139	.022***
× (Former) Communist			−.109	.060
× GRI			.030	.009**
× GDP			−.002	.001
Female	−.198	.027***	−.198	.026***
× (Former) Communist			−.101	.066
× GRI			.023	.008**
× GDP			−.000	.002
Education:				
Secondary-Vocational	.049	.030	.052	.030
× (Former) Communist			.023	.059
× GRI			.002	.008
× GDP			.001	.003
Secondary-University Prep	.029	.034	.025	.032
× (Former) Communist			.199	.084*
× GRI			−.010	.011
× GDP	.001	.003		
Some College	.005	.046	.017	.045
× (Former) Communist			.146	.124
× GRI			−.024	.014
× GDP			.001	.004
College Degree	.070	.044	.062	.042
× (Former) Communist			.164	.142
× GRI			−.005	.016
× GDP			.001	.003
Level-2 (Nation)				
(Former) Communist	.901	.401*	.509	.300
GRI	−.201	.053***	−.104	.045*
GDP	.026	.005***	.027	.005***
Random effects	*Variance Component*		*Variance Component*	
Intercept	3.112***		2.784***	
Age[a]	.011***		.008***	
Married	.050***		.050***	
Female	.091***		.075***	
Secondary-Vocational	.111***		.103***	
Secondary-University Prep	.147***		.111***	
Some College	.281***		.218***	
College Degree	.241***		.235***	
AIC	186707		187510	

Level-1 N = 69,414; level-2 N = 52

* p < .05 ; ** p < .01 ; *** p < .001

a. Coefficient and standard error multiplied by 10, variance component multiplied by 100.

b. Coefficient and standard error multiplied by 100.

shed light on why college graduation does not have the expected positive association with non-affiliation at the aggregate. College graduation does indeed have a significant, positive effect on non-affiliation in 30 nations, but it also has a significant, negative effect in 12 nations, and no effect in 10 other nations. This finding comports with both research showing changes in the effects of education on religion within nations (e.g. Schwadel, 2014; Voas and McAndrew, 2012) and research showing cross-national variation in the effects of education on religion (e.g. Hayes, 2000; Schwadel, 2015). Overall, the results from Model 2-A point to considerable variability in the demographic composition of non-affiliation around the globe.

Model 2-B includes cross-level interactions. The AIC increases from Model 2-A to 2-B, indicating worse model fit, which is not surprising given the number of insignificant interactions in Model 2-B. Nonetheless, the variance component for the intercept is reduced in Model 2-B, which indicates that a notable proportion of the between-nation variance has been explained with the addition of interactions to the model. There are significant interactions between GRI and age, marital status, and gender; between GDP and age; and between university prep secondary school degree and communist. The significant interactions with GRI are depicted in **Fig. 1**, which shows the effects of gender, marital status, and age for those in nations with the no religious regulation (eight nations have a GRI of 0), nations at the mean of GRI, and nations one standard deviation above the mean of GRI. As Fig. 1a shows, women (probability of 0.23) are less likely than men (probability of 0.28) to report no religious affiliation in nations with no religious regulation. In high-GRI nations, there are lower levels of non-affiliation for both men and women, but almost no difference between men (probability of 0.16) and women (probability of 0.15). Fig. 1b shows a similar pattern for marital status, where the difference in the probability of non-affiliation between the married (less than 0.24) and unmarried (more than 0.27) in nations with no religious regulation is nonexistent in high-GRI nations. Fig. 1c shows that there is a robust, negative effect of age in nations with low levels of religious regulation but not in nations with high levels of religious regulation. For instance, the difference in probability of nonaffiliation between the oldest and youngest respondents is 0.12 in nations with no government regulation of religion and only 0.02 in nations one standard deviation above the mean of GRI. Overall, these results indicate that the effects of age, gender, and marital status

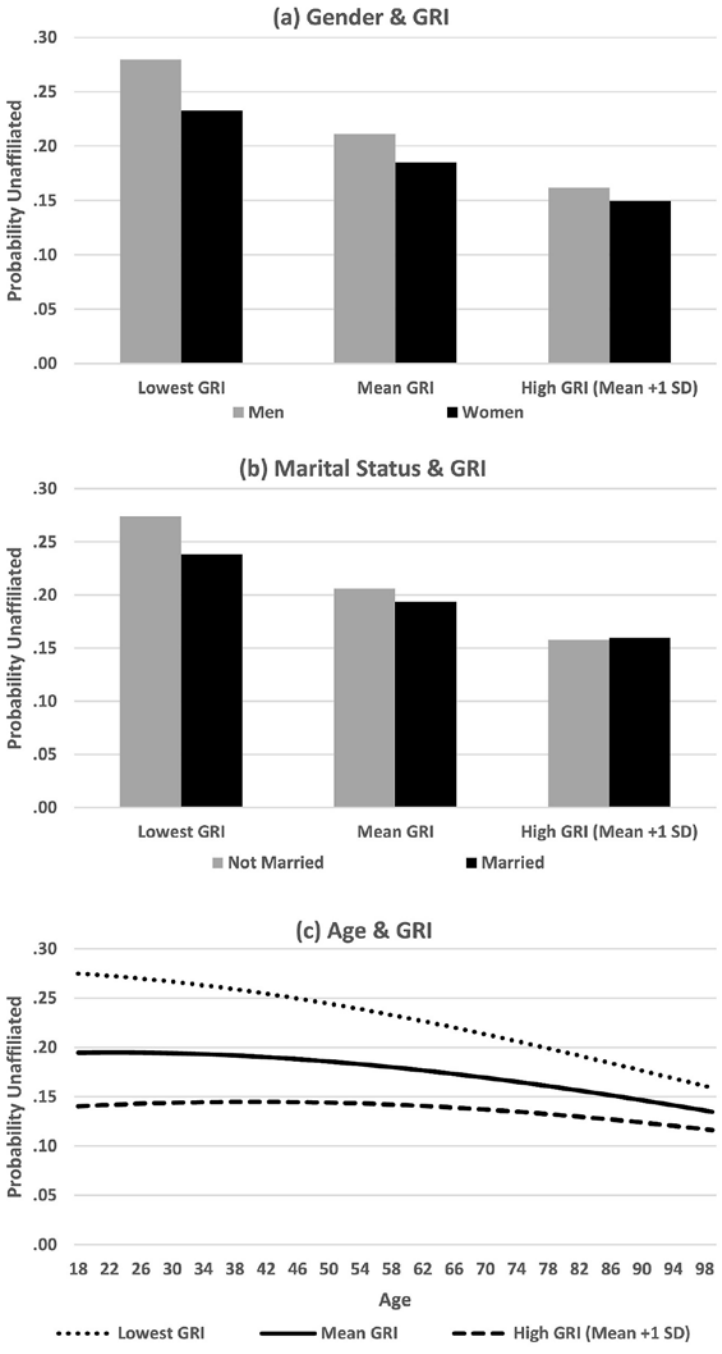

Fig. 1. Variation in individual-level predictors of religious non-affiliation by GRI.

are amplified in nations with little or no government regulation of religion, and minimized in nations with high levels of government regulation, which supports Hypotheses 2.

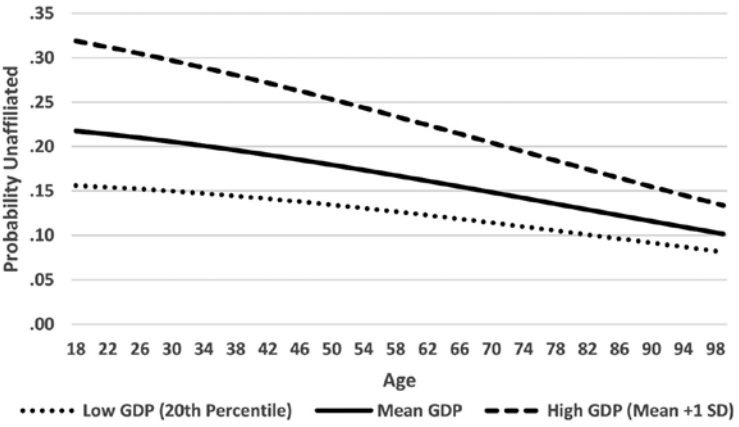

Fig. 2. Variation in effect of age on religious non-affiliation by GDP.

Model 2-B additionally shows that the effect of age varies by GDP. This interaction is depicted in **Fig. 2**, which shows that the negative effect of age is far more robust in nations with a high GDP. This is in contrast to Hypothesis 1, which suggests that the effects of demographic attributes on non-affiliation are instead reduced in high GDP nations. The difference in the probability of nonaffiliation between the oldest and youngest respondents is almost 0.19 in a nation one standard deviation above the mean of GDP and only 0.07 in a nation at the 20th percentile of GDP.

The only significant interaction with education indicates that there is no difference in non-affiliation between those with a secondary prep school degree and those with no secondary school degree in non-communist nations, but in communist and formerly communist nations a secondary prep school degree is associated with 0.03 greater probability of non-affiliation (not shown in figure). This may reflect indoctrination into communist governments' opposition to religion in some secondary schools (Sacerdote and Glaeser, 2001), and provides some support for Hypothesis 3. Overall, the results in Table 2 reveal extensive differences across nations in the effects of individual-level factors on religious non-affiliation. Who is and is not likely to be religiously unaffiliated is indeed context specific, varying considerably by the level of religious regulation and to a lesser extent by communism and the level of economic development. Next, I examine variation in the implications of non-affiliation.

2.2. The effects of religious non-affiliation on religiosity

Results from models of religiosity are reported in **Table 3**. The effects of Christian, Muslim, and other religion are robust and positive across all four indicators of religiosity. Not surprisingly, the unaffiliated are the least religious. The variance components, however, show that the effects of religious affiliation vary across nations. For instance, although Christian has a significant ($p < .05$), positive effect on service attendance in each nation, the nation-specific coefficients vary between 0.171 and 1.84 (not shown). The intercepts reflect religiosity

Table 3. Multilevel models of religiosity without interactions.

Fixed effects	*Service Attendance*		*Frequency of Prayer*		*Believe in God*[a]		*Consider Self Religious*[a]	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
Intercept	–.774	.058**	–.682	.083	.064	.139***	–.744	.134***
Level-1 (Individual)								
Christian	.996	.058***	.832	.077***	1.654	.159***	1.766	.134***
Muslim	.923	.071***	.961	.085***	2.210	.159***	2.130	.163***
Other Religion	.877	.072***	.737	.080***	1.248	.139***	1.680	.157***
Age	.003	.001***	.005	.001***	.002	.001	.009	.001***
Married	.062	.014***	.022	.011	.044	.022*	.113	.021***
Female	–.017	.050	.170	.021***	.298	.028***	.288	.028***
Education:								
Secondary-Vocational	.014	.013	–.010	.015	–.039	.025	–.050	.032
Secondary-University Prep	.002	.017	–.005	.018	–.054	.026*	–.097	.038**
Some College	.058	.015***	.021	.018	–.093	.037*	–.092	.039*
College Degree	.026	.020	.004	.022	–.127	.049**	–.124	.049*
Level-2 (Nation)								
(Former) Communist	–.604	.093***	–.809	.109***	–1.075	.227***	–.081	.226
GRI	–.013	.018	–.009	.018	–.034	.029	–.086	.030**
GDP	–.013	.004***	–.015	.003***	–.029	.007***	–.021	.005***
Proportion Unaffiliated	–.014	.181	–.149	.276	–1.510	.429***	–.189	.479
Random effects	*Variance Comp*		*Variance Comp*		*Variance Comp*		*Variance Comp*	
Intercept	.133***		.211***		1.374***		1.835***	
Christian	.139***		.197***		1.836***		1.901***	
Muslim	.169***		.236***		1.361***		2.130***	
Other Religion	.181***		.259***		.976***		1.747***	
Level-1 (Individual)	.591		.490		–		–	
AIC	161117		148087		190565		196152	

Level-1 N = 69,414; level-2 N = 52

* p < .05 ; ** p < .01 ; *** p < .001

a. Models of believe in God and consider self religious are binary logistic multilevel models.

among the unaffiliated because religious affiliation measures are not centered. Significant, negative intercepts in three out of four models in Table 3 indicate low levels of religiosity among the unaffiliated. The positive intercept in the model of belief in God means the unaffiliated are more likely than not to believe in God (i.e. probability over 0.5). Still, the negative effect of proportion unaffiliated (b = −1.510) in that model points to relatively low levels of belief in God in nations where a large proportion of the population is unaffiliated. Other level-2 variables show that living in a communist or formerly communist nation has a negative effect on prayer (b = −.809), attendance (b = −.604), and belief in God (b = −1.075), and religious regulation has a negative effect on considering one's self religious (b = −.086). In line with research on religion, economic development, and modernization more broadly (e.g. Norris and Inglehart, 2004), GDP has a strong, negative effect on all four measures of religiosity.

The multilevel models of religiosity in **Table 4** introduce cross-level interactions between religious affiliations and nation-level characteristics. The addition of interactions leads to a reduction in AIC, and therefore improved model fit, in all the models except for the model of service attendance (though only minimally in the model of prayer). The most consistent finding across the models is the positive interaction between religious affiliations—particularly Christian (three of four models) and Muslim (all four models)—and proportion unaffiliated. These interactions, which are depicted in **Fig. 3**, indicate that differences in religiosity between the affiliated and unaffiliated are greater in nations with large unaffiliated populations. For instance, as Fig. 3a shows, the difference in service attendance between the unaffiliated and Muslims grows as the proportion unaffiliated increases. Estimated difference in attendance between Muslims and the unaffiliated is 0.89 in a nation with only 1% unaffiliated and 1.30 in a nation one standard deviation above the mean of proportion unaffiliated. Fig. 3b shows that differences in frequency of prayer between the unaffiliated and both Muslims and Christians grow as the proportion unaffiliated increases. For instance, estimated difference in prayer between Christians and the unaffiliated is 0.47 in a nation with 1% unaffiliated and 0.74 in a nation one standard deviation above the mean of proportion unaffiliated. Fig. 3c shows that differences in belief in God between the unaffiliated and affiliates of all three religious traditions

Table 4. Multilevel models of religiosity with cross-level interactions.

Fixed effects	*Service Attendance*		*Frequency of Prayer*		*Believe in God*[a]		*Consider Self Religious*[a]	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
Intercept	–.762	.062***	–.651	.071***	.767	.139***	–.624	.122***
Level-1 (Individual)								
Christian	.985	.063***	.800	.066***	1.544	.154***	1.634	.126***
× (Former) Communist	–.021	.180	.179	.210	1.331	.396**	1.326	.381***
× GRI	.005	.031	.019	.033	.002	.061	–.063	.066
× GDP	–.001	.005	.006	.005	.020	.009*	.008	.010
× Proportion Unaffiliated	.373	.337	.694	.331*	1.650	.566**	1.959	.822*
Muslim	.936	.068***	.934	.074***	2.092	.145***	2.017	.143***
× (Former) Communist	–.265	.153	–.088	.185	.772	.365*	.693	.389
× GRI	–.002	.027	.018	.029	.017	.048	–.010	.057
× GDP	–.004	.005	.005	.005	.021	.006***	.011	.008
× Proportion Unaffiliated	1.047	.380**	.829	.388*	1.901	.579**	2.133	.901*
Other Religion .853	.071***	.713	.084***	1.194	.114***	1.602	.132***	
× (Former) Communist	–.270	.190	.547	.241*	1.472	.289***	1.794	.336***
× GRI	.026	.023	–.049	.035	.006	.043	–.084	.056
× GDP	–.001	.004	.009	.005	.017	.008*	.016	.009
× Proportion Unaffiliated	.215	.281	–.196	.346	1.030	.458*	1.002	.659
Age	.003	.001***	.005	.001***	.002	.001	.010	.001***
Married	.062	.014***	.022	.011	.044	.023	.117	.021***
Female	–.017	.050	.170	.021***	.307	.029***	.299	.029***
Education:								
Secondary-Vocational	.014	.013	–.010	.015	–.039	.025	–.051	.033
Secondary-University Prep	.002	.017	–.005	.018	–.054	.027*	–.100	.039**
Some College	.058	.015***	.021	.018	–.094	.038*	–.093	.040*
College Degree	.026	.020	.004	.022	–.130	.050**	–.129	.051*
Level-2 (Nation)								
(Former) Communist	–.506	.132***	–.851	.169***	−1.567	.337***	−1.158	.305***
GRI	–.007	.019	–.025	.024	–.005	.050	–.031	.045
GDP	–.012	.004**	–.019	.004***	–.036	.007***	–.031	.007***
Proportion Unaffiliated	–.348	.183	–.758	.278**	−2.052	.601***	−1.456	.451**

Random effects	*Variance Comp.*	*Variance Comp.*	*Variance Comp.*	*Variance Comp.*
Intercept	.123***	.181***	1.334***	1.319***
Christian	.135***	.153***	1.552***	1.420***
Muslim	.132***	.188***	1.183***	1.489***
Other Religion	.152***	.222***	.810***	1.014***
Level-1 (Individual)	.591	.490	–	–
AIC	161128	148086	190091	196131

Level-1 N = 69,414; level-2 N = 52
* p < .05 ; ** p < .01 ; *** p < .001
a. Models of believe in God and consider self religious are binary logistic multilevel models.

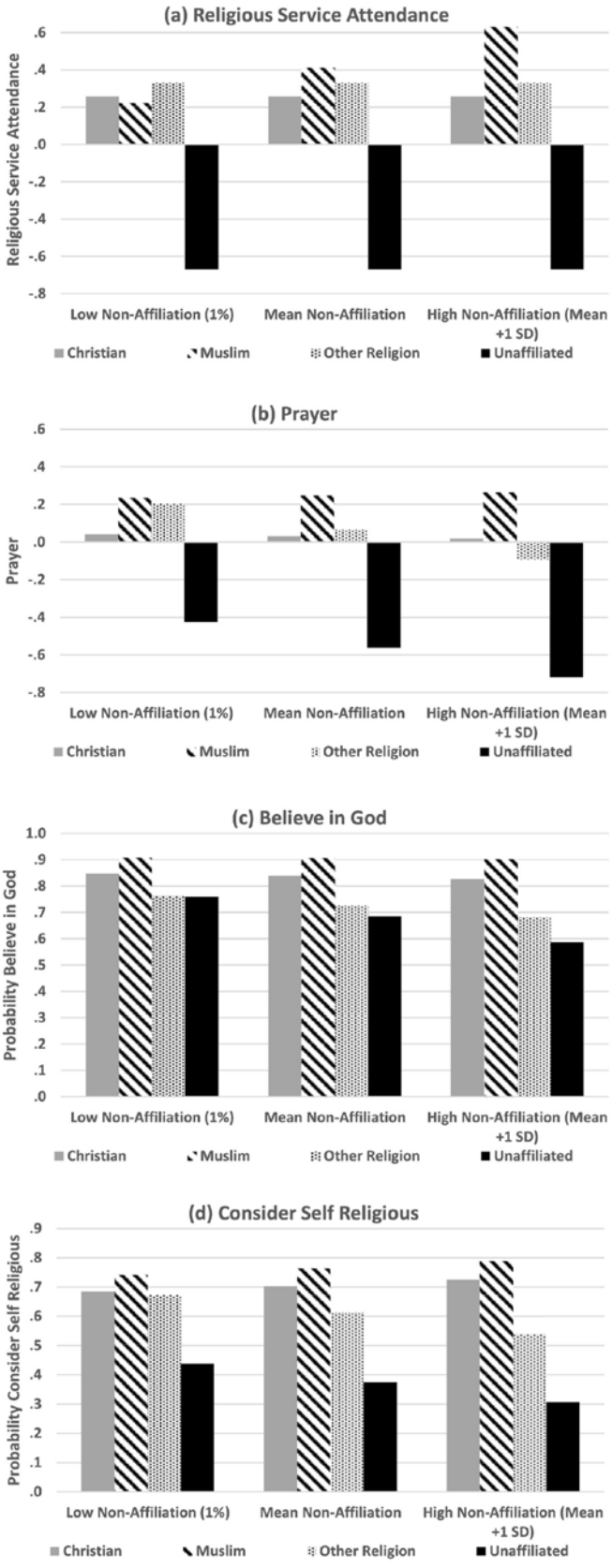

Fig. 3. Variation in effects of religious affiliation on religiosity by presence of unaffiliated in nation.

Figure based on Models in Table 4.

increase as the percent with no affiliation in the nation increases. In a nation with 1% unaffiliated, the probability of belief in God is 0.85 for Christians, 0.91 for Muslims, and 0.76 for both affiliates of other religions and the unaffiliated. In a nation one standard deviation above the mean of proportion unaffiliated, the probability of belief in God is 0.83 for Christians, 0.90 for Muslims, 0.68 for affiliates of other religions, and less than 0.59 for the unaffiliated. Fig. 3d shows substantial growth in differences in considering one's self religious between the unaffiliated and both Christians and Muslims as the proportion unaffiliated in a nation increases. Although Christians' and Muslims' likelihood considering themselves religious increases moderately as the proportion unaffiliated increases, the probability of considering one's self religious for the unaffiliated declines from 0.44 in a nation with 1% unaffiliated to 0.31 in a nation one standard deviation above the mean of unaffiliated. Another way to view these results is that that non-affiliates' religiosity (all measures but attendance) is considerably lower in nations where non-affiliation is more common but the religiosity of religious affiliates—particularly Christians and Muslims—is not diminished by the prevalence of non-affiliation in the nation. These findings provide strong support for Hypothesis 6.

There are significant interactions between religious affiliations and living in a communist or formerly communist nation in three of the four models of religiosity in Table 4. These interactions are depicted in **Fig. 4**. Fig. 4a shows that the difference in prayer between the unaffiliated and affiliates of other religions is larger in communist and formerly communist nations (1.18) than in noncommunist nations (0.63). As Fig. 4b shows, differences in belief in God between the unaffiliated and affiliates of all three religious traditions are far more robust in communist and formerly communist nations. In non-communist nations, probability of belief in God is 0.85 for Christians, 0.91 for Muslims, and 0.77 for both the unaffiliated and affiliates of other religions. In communist and formerly communist nations, probability of belief in God is 0.82 for Christians and Muslims, 0.75 for affiliates of other religions, and 0.41 for the unaffiliated. Fig. 4c reveals a similar pattern with considering one's self religious, though communism only moderates the effects of Christian and other religion, not Muslim. On the whole, the results in Fig. 4 highlight the robust, negative effects of communism on the religiosity of the unaffiliated in particular, which leads to larger differences in religiosity between

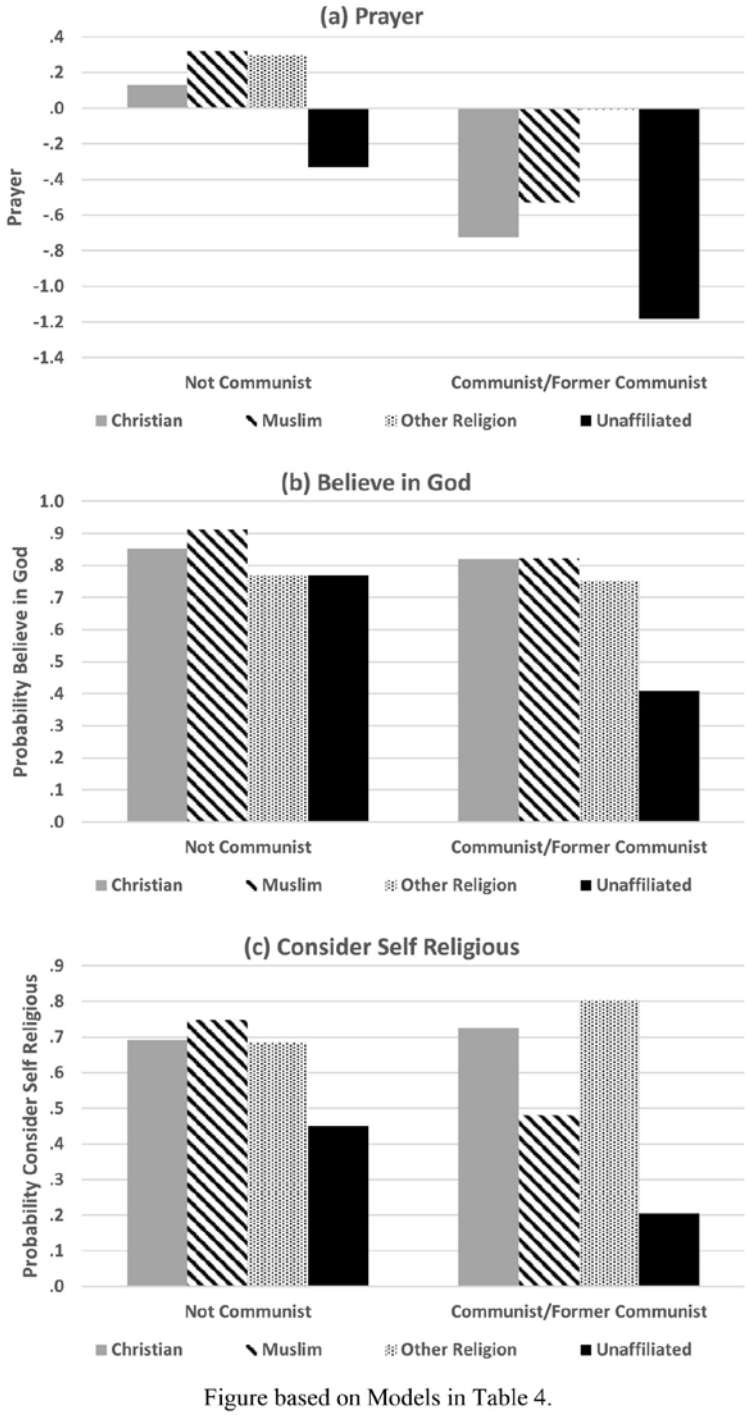

Fig. 4. Variation in effects of religious affiliation on religiosity by communism.

the affiliated and unaffiliated in communist and formerly communist nations. These findings support Hypothesis 7.

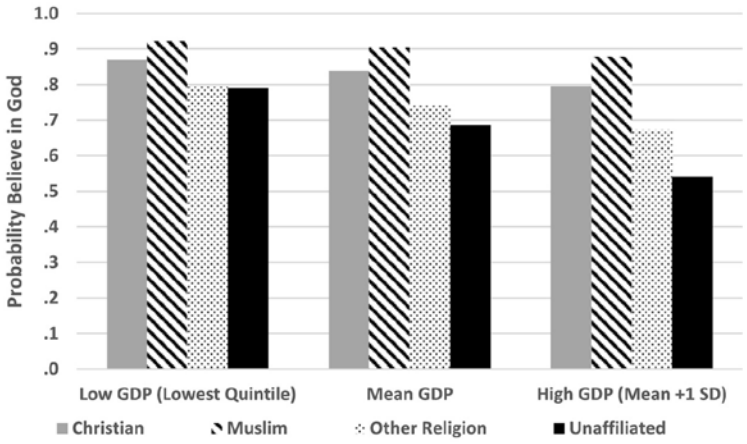

Fig. 5. Variation in effects of religious affiliation on belief in god by GDP.

Finally, there are significant interactions between each religious affiliation and GDP in the model of belief in God in Table 4. As **Fig. 5** shows, GDP is associated with a large decline in belief in God among the unaffiliated, and far more moderate declines among the religiously affiliated. Consequently, there are particularly large differences in belief in God between the affiliated and unaffiliated in nations with high per capita GDP, which provides some support for Hypothesis 4. For instance, in a nation at the 20th percentile of GDP, probability of belief in God is 0.87 for Christians, 0.91 for Muslims, and 0.79 for affiliates of other religions and the unaffiliated. In a nation one standard deviation above the mean of GDP, probability of belief in God is 0.80 for Christians, 0.88 for Muslims, 0.67 for affiliates of other religions, and 0.54 for the unaffiliated. There are no significant interactions between religious affiliations and GRI, thus providing no support for Hypothesis 5. In general, the results in Table 4 indicate that differences in religiosity between the affiliated and unaffiliated are greatest in communist and formerly communist nations, high per capita GDP nations, and nations with large unaffiliated populations.

2.3. Ancillary models

Extant theoretical and empirical research suggests several alternative model specifications that I address in this final results section. First, as the discussion of communism above indicates, the effects of

communism are expected to derive from antagonism toward religion commonly found in communist and post-communist governments. Consequently, the effects of communism may be tied to the level of religious regulation in the nation. I address this possibility with models that include interactions between GRI and communism. Models of non-affiliation reveal no significant two-way interactions between GRI and communism, nor three-way interactions between GRI, communism, and level-1 demographic attributes (not shown). When it comes to models of religiosity, however, there are some notable interactions between GRI and communism.

As the results in **Table 5** show, there is a significant, positive interaction between communism and GRI in the models of service attendance and belief in God (Models 5-A), which means the negative effect of communism on both those measures of religiosity is reduced in nations with high levels of religious regulation. This is somewhat

Table 5. Focal fixed effects results from multilevel models of religiosity with interactions between communism and GRI.

	Service Attendance		*Frequency of Prayer*		*Believe in God*[a]		*Consider Self Religious*[a]	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
MODELS 5-A								
(Former) Communist	–.736	.240**	–1.533	.541**	–1.890	.266***	.173	.246
GRI	.016	.049	.016	.053	–.108	.036**	–.070	.041
(Former) Communist × GRI	.127	.051*	–.127	.098	.182	.054***	–.049	.067
MODELS 5-B								
Christian	2.147	.148***	2.225	.170***	1.594	.155***	1.627	.137***
× (Former) Communist	.271	.652	1.519	.925	1.672	.514**	1.270	.717
× GRI	.046	.086	.189	.083*	.055	.076	–.071	.080
× (Former) Communist × GRI	–.082	.123	–.289	.167	–.100	.111	.017	.138
Muslim	2.024	.156***	2.576	.197***	2.105	.143***	2.003	.153***
× (Former) Communist	–.713	.474	.863	.944	1.573	.448***	.558	.940
× GRI	–.014	.084	.172	.086*	.107	.054	–.018	.065
× (Former) Communist × GRI	.029	.098	–.280	.175	–.191	.084*	.031	.167
Other Religion	1.873	.157***	2.039	.199***	1.235	.109***	1.638	.134***
× (Former) Communist	–.009	.475	3.917	.914***	2.042	.250***	2.766	.544***
× GRI	–.019	.067	.091	.084	.060	.053	–.049	.069
× (Former) Communist × GRI	–.126	.094	–.584	.176**	–.142	.062*	–.184	.107

All models control for age, gender, marital status, education, proportion unaffiliated, and GDP; Models 5-A also include religious tradition dummies; Models 5-B also include main effects for communism, GRI, and communism × GRI, and interactions between religious tradition dummies and both proportion unaffiliated and GDP; Level-1 N = 69,414; level-2 N = 52.

* p < .05 ; ** p < .01 ; *** p < .001

a. Models of believe in God and consider self religious are binary logistic multilevel models.

counterintuitive as the negative effect of communism on religiosity is thought to be a result of communist states' regulation of religion. More to the point of the article, the three-way interactions in the model of belief in God (Model 5-B) show significant, negative interactions between GRI, communism, and both Muslim and other religion. These interactions indicate that while Muslims and affiliates of other religions in communist nations are especially more likely than the unaffiliated to believe in God (interactions between affiliations and communism are positive), such differences in belief in God are reduced in higher GRI nations. The same pattern applies to differences in prayer between affiliates of other religions and the unaffiliated. These results are also somewhat counterintuitive as they suggest that high levels of religious regulation mitigate rather than exacerbate the influence of living in a communist or post-communist nation on differences in religiosity between the affiliated and unaffiliated; though, as Grim and Finke (2006) note, religious regulation generally pertains to favoring one religion over others, not favoring irreligion over religion.

The potential problem with measuring religious regulation along a single dimension leads to the second alternate analysis. The influence of religious regulation may differ in nations that regulate religion by supporting one religion over others and nations that regulate religion by suppressing all religions. Thus, I replace the GRI measure with two dummy variables: one for nations that have established religions or favor one religion over others, and one for nations that are hostile toward religion (see Pew Research Center, 2017). Having no state religion but also not being hostile toward religion is the largest category and serves as the omitted reference category. Models of no religious affiliation reveal that having an established or favored religion has a negative effect on nonaffiliation, but the establishment/favored religion and hostile toward religion variables do not interact significantly with the demographic variables used to predict non-affiliation (not shown).

As **Table 6** shows, when it comes to models of religiosity, there are notable interactions between religious affiliations and both establishment/favored religion and hostility toward religion (Models 6-B). This is clearest in the models of belief in God and considering one's self religious. For instance, living in a nation with an established/favored religion increases differences in belief in God between the unaffiliated and Christians (b = 1.354), Muslims (b = 1.110), and affiliates of other

Table 6. Focal fixed effects results from multilevel models of religiosity with measures of state support for and hostility toward religion.

	Service Attendance		*Frequency of Prayer*		*Believe in God*[a]		*Consider Self Religious*[a]	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
MODELS 6-A								
State Hostile toward Religion[b]	–.410	.113***	–.448	.159**	.041	.308	–1.021	.399*
Established/Favored Religion[b]	–.221	.084*	–.079	.116	–.300	.233	–.272	.216
MODELS 6-B								
Christian	.986	.059***	.801	.061***	1.631	.122***	1.709	.115***
× State Hostile toward Religion[b]	–.194	.193	–.310	.211	.554	.368	–.156	.524
× Established/Favored Religion[b]	.005	.125	.199	.132	1.354	.299***	.596	.272*
Muslim	.952	.064***	.952	.067***	2.347	.125***	2.095	.129***
× State Hostile toward Religion[b]	.074	.179	.150	.258	1.221	.474*	.374	.573
× Established/Favored Religion[b]	.232	.150	.507	.171**	1.110	.312***	1.062	.305***
Other Religion	.890	.063***	.739	.073***	1.227	.099***	1.649	.132***
× State Hostile toward Religion[b]	–.287	.211	–.794	.407	1.012	.397*	–.152	.601
× Established/Favored Religion[b]	.429	.180*	.363	.184	.931	.251***	.412	.386

All models control for age, gender, marital status, education, proportion unaffiliated, GDP, and communism; Models 6-A also include religious tradition dummies; Models 6-B also include main effects for state hostile toward religion and established/favored religion, and interactions between religious tradition dummies and proportion unaffiliated, GDP, and communism; Level-1 N = 69,414; level-2 N = 52.

* p < .05 ; ** p < .01 ; *** p < .001

a. Models of believe in God and consider self religious are binary logistic multilevel models.

b. No state religion is omitted reference category.

religions (b = .931). At the same time, living in a nation that is hostile toward religion also increases differences in belief in God between the unaffiliated and both Muslims (b = 1.221) and affiliates of other religions (b = 1.012). In other words, differences in belief in God between the affiliated and unaffiliated are smallest in nations with no state religion (the omitted reference category). These results point to the ways that any restriction on religion—either in support of or opposed to religion—can exacerbate differences in religiosity between the affiliated and unaffiliated. Looking at the models in Table 6 as a whole though shows that establishment/favoring religion more consistently intensifies differences in religiosity between the affiliated and unaffiliated. In contrast to Hypothesis 5, these results suggest that religious regulation is associated with an increase, not a decrease, in differences in religiosity between the affiliated and unaffiliated.

The third and final alternate analysis explores the effects of national religious composition in more detail. Instead of examining how the effects of religious affiliation on measures of religiosity vary by

Table 7. Focal fixed effects results from multilevel models of religiosity with proportion Christian, Muslim, and other religion.

	Service Attendance		*Frequency of Prayer*		*Believe in God*[a]		*Consider Self Religious*[a]	
	b	*se*	*b*	*se*	*b*	*se*	*b*	*se*
MODELS 7-A								
Proportion Christian	.107	.251	.240	.202	1.305	.363***	.671	.427
Proportion Muslim	–.195	.233	–.003	.200	1.483	.341***	–.485	.484
Proportion Other Religion	–.118	.309	.150	.275	−1.140	.615	−1.370	.569*
MODELS 7-B								
Christian	.932	.063***	.750	.062***	1.594	.132***	1.642	.119***
× Proportion Christian	–.093	.327	–.389	.348	−1.643	.583**	−1.366	.772
× Proportion Muslim	–.856	.321*	−1.169	.344***	−1.729	.601**	−2.918	.818***
× Proportion Other Religion	.050	.493	.273	.490	−1.248	1.476	−1.941	1.005
Muslim	.904	.072***	.900	.073***	2.449	.122***	2.012	.140***
× Proportion Christian	–.666	.467	–.704	.453	−4.107	.728***	−2.031	.964*
× Proportion Muslim	−1.388	.427**	−1.085	.454*	−2.078	.628**	−2.776	.886**
× Proportion Other Religion	–.615	.490	–.055	.556	−1.685	1.308	–.864	1.124
Other Religion	.825	.073***	.684	.090***	1.637	.120***	1.568	.147***
× Proportion Christian	–.020	.321	.405	.357	−1.041	.540	–.515	.680
× Proportion Muslim	–.550	.300	–.144	.482	.510	.567	−1.699	.792*
× Proportion Other Religion	–.235	.443	.802	.552	−1.225	.750	.150	.885

All models control for age, gender, marital status, education, GRI, communism, and GDP; Models 7-A also include religious tradition dummies; Models 7-B also include interactions between religious tradition dummies and communism, GRI, and GDP; Level-1 N = 69,414; level-2 N = 52.

* p < .05 ; ** p < .01 ; *** p < .001

a. Models of believe in God and consider self religious are binary logistic multilevel models.

the prevalence of non-affiliation in the nation (see Table 4), the models of religiosity reported in **Table 7** measure the religious context with proportion Christian, Muslim, and other religion. This provides a different picture, potentially showing how the size of different religious groups influences the results, and how the effects of specific religious traditions are related to their prevalence in each nation. Looking across the models with interaction effects in Table 7 (Models 7-B), it is proportion Muslim that most consistently interacts with each religious tradition. The positive effects of both Christian and Muslim on all four measures of religiosity decline as the proportion Muslim increases. Conversely, proportion Christian only moderates the effects of Christian and Muslim on believe in God, and the effect of Muslim on considering one's self religious; and proportion other religion plays no moderating role. These findings suggest that the support for Hypothesis 6 noted above—greater differences in religiosity between the

affiliated and unaffiliated in nations with a high proportion of unaffiliated—is disproportionately due to the lack of a Muslim presence in those nations.

3. Discussion and conclusions

A growing body of research examines the individual attributes that predict religious non-affiliation (e.g. Baker and Smith, 2009; Baker and Whitehead, 2016; Schwadel, 2014) and the religious consequences of non-affiliation (e.g. Kosmin et al., 2009; Lim et al., 2010). This research, however, is predominantly limited to the US and a few other, primarily Western nations. Social scientific understanding of the social origins and religious repercussions of non-affiliation is therefore similarly limited to those nations. As discussed above, the social and cultural implications of demographic characteristics vary across nations (Ayalon et al., 2014; Cooke and Baxter, 2010; Inglehart and Norris, 2003; Schwadel, 2015), which suggests that the effects of such characteristics on the likelihood of non-affiliation vary across nations (Hayes, 2000). The cultural implications of religious non-affiliation also differ from nation to nation (Ribberink et al., 2013; Wohlrab-Sahr and Burchardt, 2012), which suggests distinct religious consequences of being unaffiliated. This article expands on previous research by examining cross-national variation in the causes and consequences of religious non-affiliation.

The above results show large demographic differences in the likelihood of non-affiliation. On average, men are more likely than women, non-married are more likely than married, and young adults are more likely than the elderly to have no religious affiliation, but the extent and even existence of these differences varies from nation to nation. This comports with Hayes (2000) analysis of variation in the factors predicting non-affiliation across 10 Western, Christian nations. Going beyond Hayes' analysis, the results here suggest that demographic differences in the likelihood of non-affiliation are most pronounced in nations with low levels of religious regulation, which supports Hypothesis 2. As some researchers argue (e.g. Stark and Finke, 2000; Miller and Stark, 2002), greater aversion to risk among women and older adults may produce age and gender differences in religiosity. In nations with restrictive regulations on religion, however, risk-avoidance

in relation to religion may instead be more evenly distributed across the population. While a high level of religious regulation can reflect the suppression of religion in general, it more often reflects the suppression of some religions and the establishment or semi-establishment of others (Grim and Finke, 2006).[5] Consequently, high levels of religious regulation are associated with lower levels of non-affiliation, and fewer differences by age, gender, and marital status as the potential consequences of non-affiliation are more severe in many of those nations. As research on conformity suggests (e.g. Blanton and Hall, 2009), sanctions and regulations lead to less deviation from established norms.

In contrast to the first hypothesis, higher GDP is associated with increased differences in non-affiliation between older and younger adults. While this finding was unexpected, it may be explained by the persistence of life-course effects and the potential impact of generations. Norris and Inglehart's (2004) influential secularization theory proposes that material prosperity promotes an existential security that diminishes the need for religion. The above results add to research in this area by suggesting that the impact of economic development on religious non-affiliation is disproportionately found among younger adults. Perhaps the emphasis on religion among the elderly is a universal phenomenon, regardless of the level of existential security. Alternatively, age effects can instead reflect differences across birth cohorts because the above analysis uses cross-sectional data. Consequently, it may be that nonaffiliation is particularly common among more recent generations in highly developed nations, which would fit with a secularization perspective (e.g. Barro and McCleary, 2003). Overall, these results reflect, and further knowledge of, the culturally-specific social implications of socially constructed identities such as age, gender, and marital status (Jenkins, 2008).

Turning to the religious consequences of non-affiliation, the results show considerable variation across nations in the religious activities and beliefs of the unaffiliated. Differences in religiosity between the unaffiliated and religious affiliates are largest in nations with high proportions of unaffiliated, which supports the sixth hypothesis. This

5 For instance, in the analytic sample employed here, the nation with the highest GRI score is a relatively secular, communist state. Those with the next two highest GRI scores are more than 90% Muslim, but only one establishes Islam as the state religion (Pew Research Center, 2017).

is predominantly because non-affiliates' religiosity— particularly their frequency of prayer, belief in God, and likelihood of considering themselves religious—is far lower in nations where there are large numbers of unaffiliated, but the religiosity of religious affiliates is less affected by variation in the proportion unaffiliated. In regards to secularization debates and concerns that religious non-affiliation is a key sign of religious decline (e.g. Marwell and Demerath, 2003), this suggests that the secularizing impact of non-affiliation is contingent on non-affiliation attaining a widespread presence in the population. Religious non-affiliation is a social innovation (Tamney et al., 1989), which, while highly prevalent in some nations, is all but absent in others (Hackett et al., 2012; Hackett and Huynh, 2015). Just as religious homogeneity is said to provide a "sacred canopy" for believers by staving off problems of plausibility (Berger, 1967), a large enough presence of non-affiliates may provide an "unsacred canopy," for lack of a better term, that can strengthen the plausibility structures associated with a secular worldview.

Differences in religiosity between the religiously affiliated and unaffiliated also vary between non-communist and communist/ former communist nations. Communism is associated with particularly low levels of religiosity among the unaffiliated, more so than among religious affiliates. Consequently, differences in religiosity between the affiliated and unaffiliated are especially large in communist and formerly communist nations, which supports the seventh hypothesis. Similar to nations with large unaffiliated populations, the social acceptance of secularity in communist and formerly communist nations (Barber, 2011; Barro and McCleary, 2003) can provide a status shield (Hochschild, 1983) for those with more secular worldviews. In other words, it may be easier for the unaffiliated to be less religious both in communist/former communist nations and in nations with large numbers of religious nonaffiliates due to reduced pressure to be religious in those contexts.

The final noteworthy finding from the primary analysis is the moderating impact of economic development on the association between non-affiliation and belief in God. Belief in God declines as GDP increases, but much more so for the unaffiliated than for those with a religious affiliation. Differences in belief in God between the affiliated and unaffiliated are therefore especially large in nations with high per capita GDP, which provides some support for the fourth hypothesis.

These results suggest that the diminished need for religion in prosperous nations with low levels of existential insecurity (Norris and Inglehart, 2004) varies across religious affiliations. Indeed, Muslims' belief in God is relatively unaffected by GDP while belief in God among the unaffiliated declines dramatically as GDP increases. Perhaps existential security is not so much a nation-level phenomenon but is instead more strongly tied to the local context. The social world inhabited by a Muslim in a high-GDP nation may be wrought with existential insecurities while that inhabited by a non-affiliate in the same nation may be quite different. Future research can expand on these findings by focusing on smaller social contexts, such as regions, cities, neighborhoods, or even the social networks that structure social relations on a daily basis.

The ancillary models add valuable nuance to the findings. For instance, the interactions between religious regulation and communism suggest that the relatively robust differences in religiosity between the affiliated and unaffiliated in communist/post-communist nations is not due to higher levels of religious regulation in those nations.[6] In other words, communism appears to exacerbate differences in religiosity—particularly belief in God and considering one's self religious—between the affiliated and unaffiliated for reasons unrelated to how the government treats religion. As I discuss below, a focus on the *social* as opposed to *legal* acceptance of religion and secularity may provide

6 Additional models combined the approaches in Table 5 and 6 to examine how the effects of communism vary by state hostility toward religion. Recall that the primary interactions with communism and religious affiliations were in the models of belief in God and considering one's self religious (Table 4). I ran identical models but replaced the communism measure with two dummy variables: Communist nation that is not hostile toward religion and communist nation that is hostile toward religion. Results from the model of belief in God show significant, positive interactions between Christianity and both communist nations hostile toward religion (b = 1.387) and communist nations that are not hostile toward religion (b = .833), between Muslim and communist nations that are hostile toward religion (b = 1.223), and between other religion and both communist nations hostile toward religion (b = 2.045) and communist nations that are not hostile toward religion (b = 1.034). Results from the model of considering one's self religious show positive interactions between Christianity and both communist nations hostile toward religion (b = .934) and communist nations that are not hostile toward religion (b = 1.089), and between other religion and both communist nations hostile toward religion (b = 1.324) and communist nations that are not hostile toward religion (b = 1.476). Similar to the results in Table 5, these results also suggest that that the relatively robust differences in religiosity between the affiliated and unaffiliated in communist/post-communist nations is not due to state-level hostility toward religion in such nations.

greater insight into the impact of living in communist/post-communist nations. Another interesting finding from the ancillary models is the relative similarity in belief in God between the affiliated and unaffiliated in nations with neither an established/favored religion nor state hostility toward religion. This contributes to the supply-side perspective (e.g. Stark and Finke, 2000) by pointing to the potentially higher levels of religiosity among the unaffiliated when there is a free religious marketplace. Lastly, the ancillary models indicate that the relatively large differences in religiosity between the affiliated and unaffiliated in nations with high proportions of unaffiliated are disproportionately due to the small number of Muslims in such nations. This suggests that individual-level variation in religiosity may be suppressed in Muslim-majority nations in particular.

There are, of course, other important limitations to the analyses reported here. The WVS includes four broadly-applicable measures of religiosity in the form of service attendance, frequency of prayer, belief in God, and considering one's self religious. Still, given the comparative nature of the research, other indicators may be more relevant for certain religious groups, such as the importance of ancestors in some Asian religions. The cross-sectional nature of the data is another restriction, which limits the causal conclusions that can be drawn from the analysis. It is entirely possible, for example, for someone to withdraw from religious activities, then decline in their belief, and then eventually disaffiliate from religion. Future research can expand on this article by employing cross-national, longitudinal data, though such data are rare. Additional nation-level measures may also further understanding of the demographic origins and religious consequences of apostasy. For instance, I focused on a single measure of government regulation of religion (GRI) while the social acceptance of religion is related to but not equivalent to such government regulation (Grim and Finke, 2006).

Religious non-affiliation is a worldwide phenomenon that is transforming understanding of human societies. Those with no religion now constitute the world's third largest religious group, and the second largest group in almost half of all nations (Hackett and Huynh, 2015). This article makes clear that who is unaffiliated and the religious consequences of such non-affiliation vary across nations. Taylor's (2007) work on secularity is particularly relevant here as he describes the cultural transformation that led to the contemporary

context where secularity is a viable option. But this "secular age" is not uniformly distributed around the world. It is more socially acceptable to be less religious or even irreligious in some nations than in others. Moreover, the negative effect of secular contexts on individuals' religious beliefs and behaviors is most robust for the unaffiliated. Not all apostates live in social contexts that allow for the easy secular choices Taylor describes. Instead, non-affiliates who live in nations with many other non-affiliates, communist/formerly communist nations, and high per capita GDP nations appear more amenable to (or able to) choose secularity.

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